

Kansas Department of Health and Environment

Bureau of Environmental Remediation, Remedial Section

State Cooperative Program



Cleanup Efforts at World's Largest Zinc Smelter

Background:

The National Zinc Smelter Site is a former zinc smelting facility located in Cherryvale, Montgomery County, Kansas. The smelter operated between 1898 and 1976 and was recognized as the largest zinc smelter in the world until World War I. The National Zinc Smelter Site covers approximately 360 acres and at one point had four massive ore roasters, 4,800 retorts, and 24 furnaces. Sludge and liquid wastes contaminated with heavy metals were contained in large settling lagoons covering approximately 23 acres. The lagoons were used to contain runoff from an estimated 2,000 tons of slag and roasted ore. Several building foundations associated with former smelter operations remained on-site along with smelter waste. KDHE negotiated a Consent Order with potentially responsible parties to perform investigative and mitigative measures and subsequent corrective measure development and design. The Consent Order became effective on April 7, 2003.

Solution:

The cleanup of the former National Zinc Smelter Site was initiated in a multiple phase effort. Several investigations were performed by KDHE beginning in 1999 to determine the extent of the contamination. It was discovered that approximately 360 acres were contaminated above the risk-based standards. Investigations determined that elevated levels of heavy metals such as lead, cadmium, arsenic, and zinc were widespread across the site and on neighboring properties. Heavy metal contamination was also discovered within the on-site drainage channels that ultimately drain into Drum Creek. Several building foundations along with smelter waste remained on-site.



Contaminated soil before remedial action..



An aerial view of the area after remediation.

In 2002 the EPA, in coordination with KDHE, completed a time-critical removal action to excavate and replace contaminated soils in adjacent residential yards. KDHE-led remedial activities began in mid-June 2007 and consisted of construction of an on-site disposal area, removal of contaminated soil from on-site and off-site impacted areas, construction of a sediment catchment dike system in Drum Creek, removal of visible sediments from an unnamed creek and Drum Creek, construction of a soil cover system for the on-site disposal area, and restoring all removal areas. The cleanup of the former National Zinc Smelter Site was completed in November 2007. The City of Cherryvale plans to redevelop the property and put it back in productive use.

Because contaminated soil and smelter waste remains capped on-site, KDHE also required the implementation of institutional controls to manage current and future uses of the property and prevent exposure to the residual contamination. The fenced on-site disposal area and the catchment dike system will continue to be maintained in accordance with the long-term Operation and Maintenance Plan approved within KDHE's Environmental Use Control Program.

Benefits:

- 315,000 cubic yards of impacted soil and industrial waste removed from human contact
- 4,000 cubic yards of impacted sediment removed from Unnamed Creek and Drum Creek
- Potential for 360 acre property to be redeveloped and put back in productive use